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(54) A tow hitch assembly for a motor vehicle

(57) A tow-hitch assembly is disclosed having a tubular member 10, 110 for attachment to a structural part of a motor vehicle and a tow-hitch member 17, 117 engageable with and securable to the tubular member 10, 110. A transverse abutment means 12, 28 is fixed to the tubular member 10, 110 for cooperation with means 20, 26 formed on the end of the tow-hitch member 17, 117.

The positioning of the abutment means 12, 28 is such that virtually no movement of the tow-hitch member 17, 117 relative to the tubular member 10, 110 can occur.

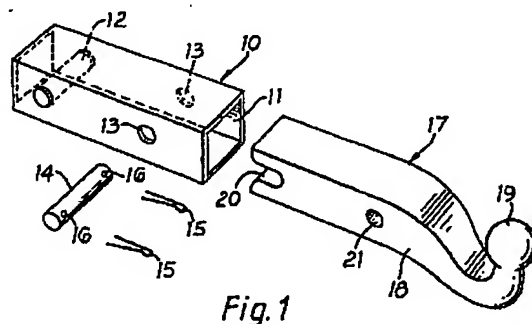


Fig. 1

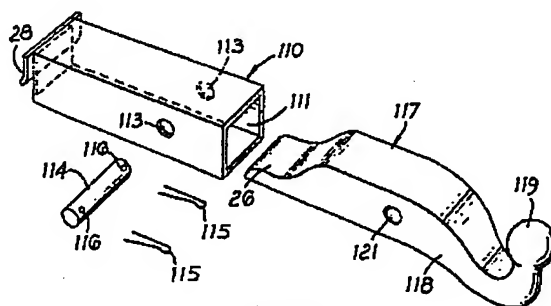


Fig. 2

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

The print reflects an assignment of the application under the provisions of Section 30 of the Patents Act 1977.

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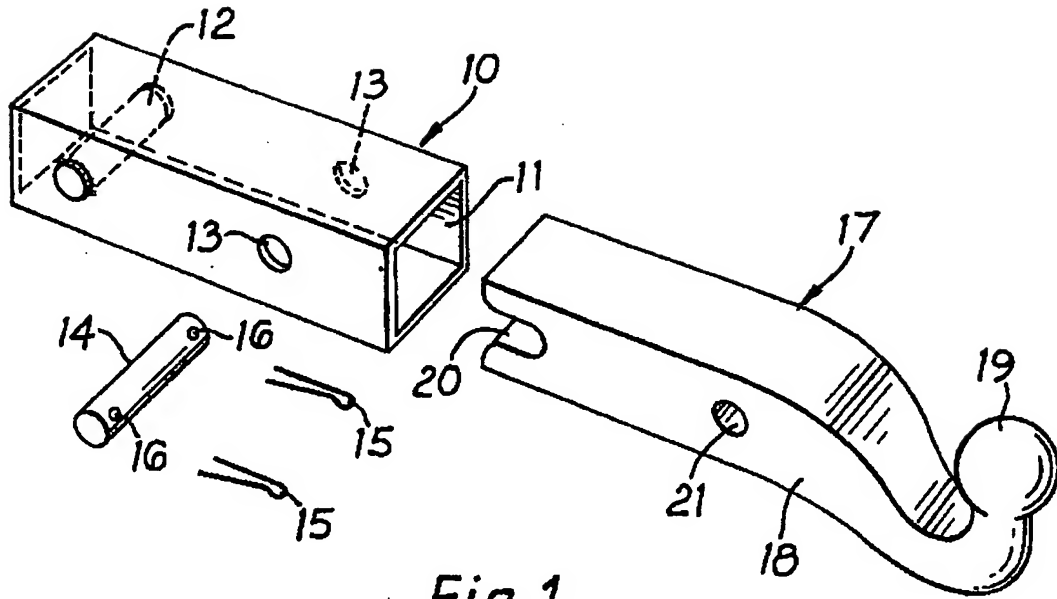


Fig. 1

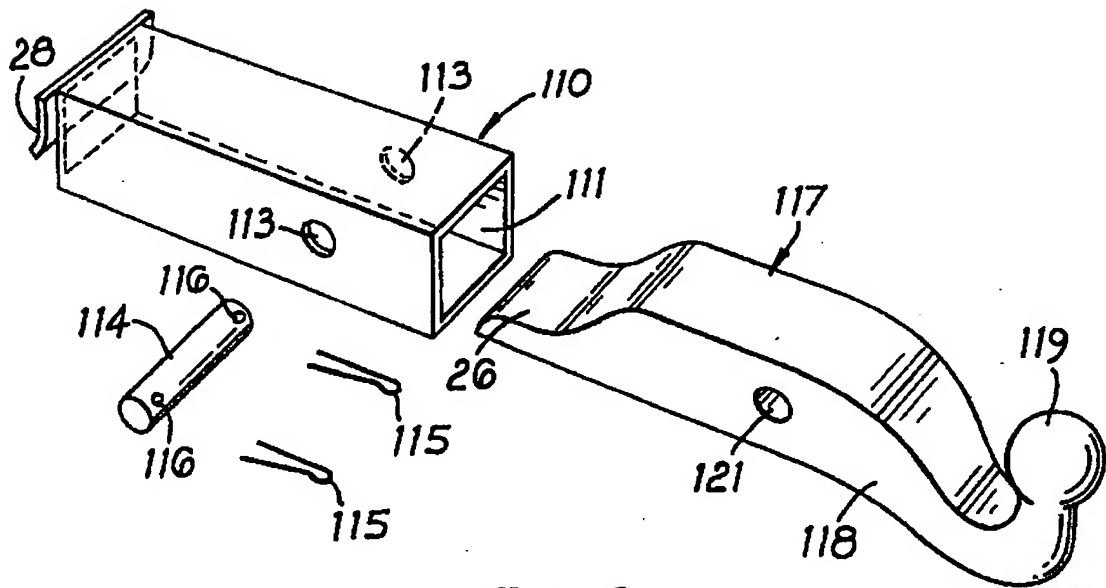


Fig. 2

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A TOW HITCH ASSEMBLY FOR A MOTOR VEHICLE

This invention relates to a tow-hitch assembly for a motor vehicle and in particular to a tow-hitch assembly in which the tow-hitch is quickly removable from the vehicle when not required.

It is known to provide a tow-hitch assembly having a tubular member adapted for connection to a motor vehicle and a tow-hitch member engagable with the tubular member.

The tow-hitch member in such a prior art assembly is normally secured within the tubular member by a bolt that extends transversely through the tubular member and the tow-hitch member. Such an arrangement allows the tow-hitch member to be quickly removed from the vehicle when not in use or easily changed for a different type of tow-hitch.

Such prior art tow-hitch assemblies have the disadvantage that the clearance between the tubular member and the tow ball member often results in use in undesirable noise generation in the form of rattling.

It is an object of this invention to overcome the disadvantage of the prior art.

According to the invention there is provided a tow-hitch assembly for a motor vehicle, the assembly comprising a

tubular member for attachment to a structural part of the motor vehicle and an elongate tow-hitch member engagable with clearance within the bore of the tubular member, the tow-hitch member having an elongate shank a first end of which is formed into a tow-hitch means and a second end of which is adapted for cooperation with an abutment means on the tubular member, the shank being retainable within the bore by means of a transverse rod extending through respective apertures in the shank and the tubular member such that upon insertion of the shank into the bore of the tubular member any free movement between the shank and the tubular member is prevented by abutment of the second end of the shank with the abutment means.

Preferably, the second end of the shank may have a transverse groove formed in it which engages with a transverse abutment fixed to the tubular member.

Alternatively, the second end of the shank may have a tapered end portion which slides under a transverse abutment fixed to the tubular member.

The invention will now be described by way of example with reference to the accompanying drawing of which:

Figure 1 is a pictorial representation of a first embodiment according to the invention;

Figure 2 is a pictorial representation of a second embodiment according to the invention

With reference to Figure 1 there is shown a tow-hitch assembly having a tubular member 10 and a tow-hitch member 17. The tubular member 10 has a bore 11 into which the tow-hitch member 17 is engagable with clearance.

A transverse abutment means is fixed to the tubular member 10 in the form of the bar 12 which is secured in the bore 11 near to one end of the tubular member 10.

A pair of apertures 13 are formed in the tubular member 10 near its other end to allow for the passage of a securing rod 14. The rod 14 is kept in position by means of split pins 15 which are inserted one in either end of the rod 14 through transverse holes 16 in the rod 14 after insertion of the rod 14 through the apertures 13.

The tow-hitch member 17 has an elongate shank 18 a first end of which is formed into a tow-hitch in the form of the part spherical ball 19 and a second end which is adapted for cooperation with the bar 12 by the provision of a transverse groove 20.

A hole 21 in the tow-hitch member 17 allows for the passage

of the rod 14 used to retain it in the bore 11. Upon insertion of the tow-hitch member 17 into the bore 11 the transverse groove 20 engages with the bar 12.

The tow-hitch member 17 is secured in place by the rod 14 which passes through the holes 16 in the tubular member 10 and the hole 21.

The engagement of the groove 20 with the bar 12 reduces any excess free play between the tubular member 10 and tow-hitch member 17, the width of the groove 20 being just greater than the diameter of the bar 12.

With reference to Figure 2 there is shown a tow-hitch assembly having a tubular member 110 and a tow-hitch member 117. The tubular member 110 has a bore 111 into which the tow-hitch member 117 is engagable with clearance.

A transverse abutment means is fixed to the tubular member 110 in the form of the plate 28 which is secured to one end of the tubular member 110.

A pair of apertures 113 are formed in the tubular member 110 near its other end to allow for the passage of a securing rod 114. The rod 114 is kept in position by means of split pins 115 which are inserted one in each end of the rod 114

through transverse holes 116 in the rod 114 after the rod 114 has been inserted through the apertures 113.

The tow-hitch member 117 has an elongate shank 18 a first end of which is formed into a tow-hitch in the form of the part spherical ball 119 and a second end which is adapted for cooperation with the plate 28 by the provision of a tapered end portion 26.

A hole 121 in the tow-hitch member 117 allows for the passage of the rod 114 used to retain the shank 118 in the bore 111.

Upon insertion of the shank 118 into the bore 11 the tapered end portion 26 passes between the lower edge of the plate 28 and the wall of the bore 11.

As the shank 118 is inserted further the clearance between the tapered end portion 26 and the plate 28 reduces so that when the member 117 is secured in position by the insertion of the rod 114 the clearance between the end portion 26 and the plate 28 is minimal.

Although the invention has been described with reference to ball type towing-hitches it is equally applicable to other types of towing-hitches.

The tow-hitch member could of course be secured in the tubular member by means of a conventional nut and bolt instead of the rod 14,114 and split pins 15.115.



CLAIMS

1. A tow-hitch assembly for a motor vehicle, the assembly comprising a tubular member for attachment to a structural part of the motor vehicle and an elongate tow-hitch member engagable with clearance within the bore of the tubular member, the tow-hitch member having an elongate shank a first end of which is formed into a tow-hitch and a second end of which is adapted for cooperation with an abutment means on the tubular member and being retainable within the bore by means of a transverse rod extending through respective apertures in the tubular member and the shank wherein upon insertion of the shank into the bore of the tubular member any free movement between the shank and the tubular member is prevented by abutment of the second end of the shank with the abutment means.
2. A tow-hitch assembly as claimed in Claim 1 in which the second end of the shank is adapted by having a transverse groove formed in it.
3. A tow-hitch assembly as claimed in Claim 2 in which upon insertion and securing of the shank in the bore of the tubular member the transverse groove engages with a transverse abutment fixed to the tubular member.

4. A tow-hitch assembly as claimed in Claim 1 in which the second end of the shank is adapted by having a tapered end portion.
5. A tow-hitch assembly as claimed in Claim 4 in which upon insertion and securing of the shank in the bore of the tubular member the tapered end portion slides under a transverse abutment fixed to the tubular member.
6. A tow-hitch assembly as claimed in any preceding claim in which the tow-hitch is a tow-ball having a part spherical first end portion.
7. A tow-hitch assembly for a motor vehicle substantially as described herein with reference to the accompanying drawings.